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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,859	10/18/2004	Hanan Herzberg	37476	5049

67801 7590 01/17/2008

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EXAMINER	
FLORES, LEON	

ART UNIT	PAPER NUMBER
2611	

MAIL DATE	DELIVERY MODE
01/17/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/511,859	HERZBERG, HANAN	
	Examiner	Art Unit	
	Leon Flores	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51* is/are pending in the application.

4a) Of the above claim(s) *31,32 and 35* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11-15,17,19-30,33,34,36-44 and 46-51* is/are rejected.

7)☒ Claim(s) *10, 16, 18, 45* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims (1-51) have been considered but are moot in view of the new ground(s) of rejection.

Response to Remarks

Applicant asserts that, *"Webster does not decode or display a signal in a way that shows the information content".*

The examiner respectfully disagrees. The reference of Webster does teach demodulating in order to recover the digital information. (See col. 1, lines 34-42) However, taking the contrary, the examiner has issued a new ground of rejection in order to illustrate that the claimed invention, as claimed in claim 1, is not novel.

Applicant further asserts that, *"Van Den Brink does not teach, in Fig. 1, neither a distance of one modem from a line interface relative to a distance of another modem from the line interface. While one modem may be closer to a line interface than another, as the Examiner states, Van Den Brink does not appear to have addressed the issue".*

The examiner respectfully disagrees. As you can clearly see in figure 1, the testing loop is connected closer to modem 6 and farther to modem 7. Furthermore, one skilled in the art would know that this type of arrangement can be considered to be a designer's choice.

Applicant further asserts that, *"Downey does not teach displaying the contents of one or more modem negotiation signals".*

The examiner agrees. However, a new ground of rejection has been issued in order to substantiate for this limitation.

Applicant further asserts that, *"neither Webster nor Downey teaches suggesting, by the processor, possible sources of the noise".*

The examiner agrees. However, a new ground of rejection has been issued in order to substantiate for this limitation.

Applicant further asserts that, *"neither Webster nor Downey teach determining, by the processor, information on the symbol mapping used by the connection, based on the collected signals, and that Downey teaches recording modem configuration data. The modem configuration, data, as taught by Downey, is data input into the modem as configuration data for a test, and not a determination of information on the symbol mapping used by the connection, based on the collected data and other signals".*

The examiner agrees. However, a new ground of rejection has been issued in order to substantiate for this limitation.

Applicant further asserts that, *"Conklin does not describe identifying a bit swap in col. 4, lines 30-51 & col. 5, lines 46-61. Applicant respectfully points out that neither Webster nor Conklin teach identifying a bit swap". And that Conklin does not teach "providing suggested causes of the changes comprises identifying, for at least one change, a noise that caused the change" in col. 4, lines 30-51 & col. 5, lines 46-61. Applicant respectfully points out that Conklin does not mention noise at all".*

The examiner respectfully disagrees. Conklin teaches listening/eavedropping process in which data are collected and sent to the intrusion detection functions. The

intrusion examines the data in comparison to a series of predefined or learned patterns. (See col. 4, lines 30-51) One skilled in the art would know that by comparing the data to predefined patterns one can identify a bit swap, and if there is any intrusion. (noise)

Applicant further asserts that, *"neither Webster nor Conklin teach "collecting modem negotiation signals". Webster collects analog signals, while Conklin does not mention moderns at all".*

The examiner respectfully disagrees. Conklin teaches listening/eavedropping process in which data are collected and sent to the intrusion detection functions. The intrusion examines the data in comparison to a series of predefined or learned patterns. (See col. 4, lines 30-51) One skilled in the art would know that the signals being collected through the network are comprised of data signals and training signals, as well known in the art. Furthermore, a modem is a device that modulates/demodulates data onto a carrier. Having said this, the reference of Conklin does not have to mention the word "modem" in order to transmit/receive data.

Applicant further asserts that, *"Downey does not teach "including a pilot tone frequency band of the modem connection".*

The examiner respectfully disagrees. One skilled in the art would know that xDSL systems may operate using Discrete Multitones (DMT) as their protocol to convey information to other modems. DMT comprises of both pilot tones and data tones.

Applicant further asserts that, *"Downey does not describe a frequency band, and does not describe "connecting a circuit which shorts the at least one first frequency*

band without shorting the second frequency band". Downey does not teach frequency bands at all".

The examiner respectfully disagrees. See arguments above.

Applicant further asserts that, *"Webster describes observing a data waveform. Webster is silent in Fig. 4 or 22 & col. 2, line, s 26-51 about "determining a bit content", and, in fact, does not mention bits at all".*

The examiner respectfully disagrees. The reference of Webster does teach demodulating in order to recover the digital information. (See col. 1, lines 34-42) However, taking the contrary, the examiner has issued a new ground of rejection in order to illustrate that the claimed invention, as claimed in claim 1, is not novel.

Applicant finally asserts that, *"neither Webster nor Downey teaches determining a stage of the modem connection".*

The examiner respectfully disagrees. The reference of Downey does teach using the DSLAM software module repeatedly in order to inquire the training status of the modem. (See col. 5, lines 25-27)

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims (1, 3, 12, 27-28, 39, 41-44) are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) in view of Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2).

Re claim 1, Van Den Brink discloses a method of analyzing the performance of a modem connection, comprising: connecting a line interface to a communication link carrying signals of a modem connection, between a pair of end modems (See fig 1 & paragraphs 87-97); collecting data and other signals passing on the communication link, between the end modems, through the line interface. (See fig 1 & paragraphs 87-97)

The reference of Van Den Brink discloses the limitations as claimed, except he fails to teach determining, by a processor, an information content of one or more data and other signals transmitted between the end modems responsive to data and other signals collected through the line interface; and

displaying information on the modem connection, responsive to the determined information content.

However, Nakamoto does. (See figs. 1A, 2-6 & col. 5, lines 40-49 & col. 3, lines 48-51) Nakamoto discloses a system for testing networks. This system is comprised of testing apparatus, processing unit, and a user interface. The latter may be a typical workstation computer equipped with a central processing unit (CPU) capable of analyzing traffic, filtering traffic, and capturing traffic for analysis and decoding.

Taking the combined teachings of Van Den Brink and Nakamoto as a whole. It would have been obvious to one of ordinary skills in the art to incorporate these features into the system of Webster, in the manner as claimed and as taught by Nakamoto, for the benefit of monitoring network traffic.

Re claim 3, the combination of Van Den Brink and Nakamoto fails to disclose that wherein the modem connection comprises an ADSL modem connection. (In Van Den Brink, see paragraph 93)

Re claim 12, the combination of Van Den Brink and Nakamoto further discloses, wherein displaying information on the modem connection comprises displaying information on signaling signals transmitted in parallel to data transmission. (In Nakamoto, see col. 5, lines 40-49)

Re claim 27, the combination of Van Den Brink and Nakamoto further discloses that, comprising extracting the data transmitted on the modem connection from the signals collected through the line interface. (In Nakamoto, see col. 5, lines 40-50)

Claim 28 is a system claim corresponding to method claim 1. Hence, the steps performed in method claim 1 would have necessitated the elements in system claim 28. Therefore, claim 28 has been analyzed and rejected w/r to claim 1 above.

Re claim 39, the combination of Van Den Brink and Nakamoto further discloses that wherein determining the information content on one or more signals comprises determining a bit content. (In Nakamoto, see col. 5, lines 40-49)

Re claim 41, the combination of Van Den Brink and Nakamoto further discloses that, wherein the only modem tangible signals transmitted on the connection during the collection of the signals through the line interface are generated by the end modems. (In Van Den Brink, see fig. 1 & paragraph 93)

Re claim 42, the combination of Van Den Brink and Nakamoto further discloses that, wherein at least some of the data and other signals collected through the line interface are generated by at least one of the pair of end modems without the line interface sending acknowledgment signals or any other modem tangible signals to either of the modems. (In Van Den Brink, see fig. 1 & paragraphs 93-97)

Re claim 43, the combination of Van Den Brink and Nakamoto further discloses that wherein the processor is not connected to the end modems other than through the line interface. (In Nakamoto, see figs 1A, 2-6)

Re claim 44, the combination of Van Den Brink and Nakamoto further discloses that, wherein collecting data and other signals passing on the communication link comprises collecting during a collection session in which data and other signals are not injected through the line interface onto the communication link, except possibly noise adapted to cause a retrain, injected at specific times. (In Van Den Brink, see fig. 1 & paragraphs 93-97)

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) and Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2), as applied to claim 1 above, and further in view of Webster et al (hereinafter Webster) (US Patent 5,425,052)

Re claim 2, the combination of Van Den Brink and Nakamoto fails to disclose that wherein the modem connection comprises a full-duplex modem connection.

However, Webster does. (See fig. 4 & col. 4, lines 7-10) Webster discloses a full-duplex digital communication link.

Taking the combined teachings of Van Den Brink, Nakamoto, and Webster as a whole, it would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, as modified by Nakamoto, in the manner as

claimed and as taught by Webster, for the benefit of providing digital communications simultaneously between the two end-users.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1), Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2), and Webster et al (hereinafter Webster) (US Patent 5,425,052)

Re claim 11, the combination of Van Den Brink and Nakamoto fails to explicitly teach that determining, by the processor, information on the symbol mapping used by the connection, based on the collected data and other signals.

However, the reference of Webster does teach that the demodulators contain the necessary signal processing techniques to compensate for any distortion present in the separated signals due to the two wire transmission line. (See col. 1, lines 34-52) Furthermore, one skilled in the art would know that if the demodulators are capable of providing compensation due to the line, then the symbol mapping of the connection must be known priori in order to estimate the impairments of the channels and to provide compensation.

Therefore, it would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, as modified by Nakamoto, for the benefit of optimizing the communication link.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) in view of Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2)

Re claim 7, the combination of Van Den Brink and Nakamoto fails to explicitly teach that wherein displaying information on the modem connection comprises displaying the contents of one or more modem negotiation signals.

However, the reference of Nakamoto does teach a central processing unit (CPU) capable of analyzing traffic, filtering traffic, and capturing traffic for analysis and decoding.

Therefore, it would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, as modified by Nakamoto, for the benefit of monitoring network traffic.

Claims (4-6 & 8) are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) in view of Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2)

1. Re claim 4, the combination of Van Den Brink and Nakamoto fails to teach that wherein connecting the line interface to the communication line comprises connecting at a point at least two times closer to one of the modems than the other modem.

However, Van Den Brink does teach that the line interface being placed at a specific placed at a distance closer to one of the modems, and farther away from the

other modem. (See fig. 1) Furthermore, this type of connection may be considered to be a designer's choice since it is up to the user/designer to decide where he/she wants to place the testing device.

Therefore, it would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, as modified by Nakamoto, for the benefit of obtaining compensation for any restrictions associated with the transmission of signals into the line.

Re claim 5, the combination of Van Den Brink and Nakamoto further discloses that wherein connecting the line interface to the communication line comprises connecting at a point at most two times closer to one of the modems than to the other modem. (This claim has been analyzed and rejected in view of claim 4 above.)

Re claim 6, the combination of Van Den Brink and Nakamoto further discloses that, wherein collecting signals passing on the communication link comprises collecting without sending to either of the modems acknowledgment signals or any other modem tangible signals. (In Van Den Brink, see fig. 1 & paragraph 93. The line interface is placed in between the two modems. Its function is to analyze the quality/characteristics of the line by measuring/examining the signals flowing through the line. Furthermore, one skilled in the art would know that it doesn't need to send any acknowledgement or signals to any of the modems at each end.)

Re claim 8, the combination of Van Den Brink and Nakamoto further discloses that wherein displaying information on the modem connection comprises providing information on noise levels on the connection. (In Van Den Brink, see fig. 7)

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) in view of Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2)

Re claim 9, the combination of Van Den Brink and Nakamoto fails to disclose that wherein providing information on noise levels on the connection comprises suggesting, by the processor, possible sources of the noise.

However, the reference of Van Den Brink does teach a Graphical User Interface (GUI) which shows the properties of cross-talk noise on the line. (See fig. 7)

Therefore, it would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, as modified by Nakamoto, for the benefit of optimizing the communication link.

2. **Claims (14, 17, 24) are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) and Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2), as applied to claim 1 above, and further in view of Downey (US Patent 6,690,720 B1).**

Re claim 14, the combination of Van Den Brink and Nakamoto fails to disclose discloses injecting through the line interface noise which forces a retrain of the modem connection.

However, Downey does. (See fig. 3 & col. 5, lines 1-7) Downey discloses a system for training the connection of modems by adding noise impairments.

Taking the combined teachings of Van Den Brink, Nakamoto, and Downey as a whole. It would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, as modified by Nakamoto, in the manner as claimed and as taught by Downey, for the benefit of providing training to the modems.

Re claim 17, the combination of Van Den Brink, Nakamoto, and Downey further discloses the modem connection comprises a DSL connection. (In Downey, see col. 6, lines 7-10)

Re claim 24, the combination of Van Den Brink, Nakamoto, and Downey further discloses identifying data retransmissions and providing suggested causes of the data retransmissions. (In Downey, see col. 5, lines 1-6. Furthermore, this is well known in TCP.)

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) and Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2), and Downey (US Patent 6,690,720 B1).

Re claim 15, the combination of Van Den Brink, Nakamoto and Downey fails to explicitly teach injecting the noise comprises injecting noise in a manner which does not substantially interfere with a different connection passing on the communication link.

However, the reference of Downey does teach injecting noise onto the line in order to test the connection between the two modems. This type of testing is mainly used to test any analog or digital modem, including the various types of Digital Subscriber Loop (xDSL) equipment. Furthermore, one skilled in the art would know that that xDSL systems are comprised of pilot tones and data tones. The former is used to train the connection of the modems, and the other to carry information to the user. In the reference of Downey, noise is injected for training purposes. (pilot tones)

Therefore, it would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, as modified by Nakamoto and Downey, in the manner as claimed and as taught by Downey, for the benefit of optimizing the communication link.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) and Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2), and Downey (US Patent 6,690,720 B1), as applied to claim 14 above, and further in view of Fisher et al. (hereinafter Fisher) (US Publication 2004/0047407 A1)

Re claim 19, the combination of Van Den Brink, Nakamoto and Downey fails to explicitly teach that the modem connection comprises a voice band modem connection.

However, Fisher does. (See paragraph 3) Fisher discloses that Voice band modems (VBMs) are used for transmitting data over telephone communication links.

Taking the combined teachings of Van Den Brink, Nakamoto, Downey, and Fisher as a whole, it would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, as modified by Nakamoto, in the manner as claimed and as taught by Downey, for the benefit of transmitting data over telephone communication links.

Claims (25 & 29) are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) and Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2), as applied to claim 1 above, and further in view of Linzy. (US Patent 6,718,384 B2)

Re claim 25, the combination of Van Den Brink and Nakamoto fails to disclose that wherein displaying information on the determined characteristics comprises displaying a raw bit content of signals transmitted on the modem connection.

However, Linzy does. (See fig. 6 & col. 6, lines 30-46) Linzy discloses a graphical user interface (GUI) for monitoring communication networks. It is comprised of a terminal window containing passive TL1 commands (generic retrieves) designed to assist the user in acquiring information about the network. The TL1 messages may be obtained by "listening" to message traffic on communication network.

Taking the combined teachings of Van Den Brink, Nakamoto, and Linzy as a whole, it would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, as modified by Nakamoto, in the manner as claimed and as taught by Linzy, for the benefit of monitoring the communication network.

Claim 29 is a system claim corresponding to method claim 16. Hence, the steps performed in method claim 16 would have necessitated the elements in system claim 29. Therefore, claim 29 has been analyzed and rejected w/r to claim 16 above.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1 in view of Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2).

Re claim 30, Van Den Brink discloses a method of monitoring an xDSL modem connection, comprising: connecting a line interface to a communication link carrying data and other signals of an xDSL modem connection, between a pair of end modems separate from the line interface. (See fig. 1 & paragraphs 87-97)

But the reference of Van Den Brink fails to explicitly teach collecting data and other signals passing between the end modems on the communication link, through the line interface, by a performance analyzer, during a collection session in which data and other signals are not injected by the performance analyzer onto the communication link, except possibly noise adapted to cause a retrain, injected at specific times.

However, the reference of Van Den Brink does teach the measurement of signal flow through the test equipment set-up. During this measurement the impairment generator is switched off. (See fig. 1 & paragraph 93) Furthermore, one skilled in the art would know that xDSL systems utilize Discrete Multi-tones (DMT) to transmit information, and these tones are comprised of data tones and pilot tones.

Therefore, it would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, in the manner as claimed, for the benefit of optimizing the communication link.

The reference of Van Den Brink discloses the limitation as claimed above, except he fails to explicitly teach providing information on the modem connection, responsive to the collected data and other signals by providing data passing on the connection.

However, Nakamoto does. (See figs. 1A, 2-6 & col. 5, lines 40-49 & col. 3, lines 48-51) Nakamoto discloses a system for testing networks. This system is comprised of testing apparatus, processing unit, and a user interface. The latter may be a typical workstation computer equipped with a central processing unit (CPU) capable of analyzing traffic, filtering traffic, and capturing traffic for analysis and decoding.

Taking the combined teachings of Van Den Brink and Nakamoto as a whole. It would have been obvious to one of ordinary skills in the art to incorporate these features into the system of Van Den Brink, in the manner as claimed and as taught by Nakamoto, for the benefit of monitoring network traffic.

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) and Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2), as applied to claim 1 above, and further in view of Linzy. (US Patent 6,718,384 B2)

Re claim 40, the combination of Van Den Brink and Nakamoto fails to disclose determining a stage of the modem connection, responsive to the collected data and other signals.

However, Linzy does. (See fig. 6 & col. 6, lines 30-46) Linzy discloses a graphical user interface (GUI) for monitoring communication networks. It is comprised of a terminal window containing passive TL1 commands (generic retrieves) designed to assist the user in acquiring information about the network. The TL1 messages may be obtained by "listening" to message traffic on communication network.

Taking the combined teachings of Van Den Brink, Nakamoto, and Linzy as a whole, it would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, as modified by Nakamoto, in the manner as claimed and as taught by Linzy, for the benefit of monitoring the communication network.

3. **Claims (33-34, 36-38) are rejected under 35 U.S.C. 103(a) as being unpatentable over Downey (US Patent 6,690,720 B1) in view of Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2).**

Re claim 33, Downey discloses a method of forcing a retrain on a modem connection, comprising: determining at least one first frequency band to be disrupted (See fig. 1: 22 & col. 5, lines 1-7 & claim 2); and connecting to a communication line carrying the modem connection, between two end modems, a circuit which disrupts transmission of signals on the at least one first frequency band. (See fig. 1: 22)

But the reference of Downey fails to explicitly teach substantially without interfering with data and other signals of a second frequency band.

However, Nakamoto does. (See col. 5, lines 5-31) Nakamoto discloses a testing device used to conduct tests on one or more networking systems. One of the test conducted on the system is the injection of errors in order to test error detection and handling.

Taking the combined teachings of Downey and Nakamoto as a whole. It would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Downey, in the manner as claimed and as taught by Nakamoto, for the benefit of testing error detection and handling.

Re claim 34, the combination of Downey and Nakamoto further discloses that wherein determining the at least one first frequency band to be disrupted comprises determining a frequency band including a pilot tone frequency band of the modem connection. (In Downey, see fig. 1 & col. 1, lines 55-62 & col. 2, lines 10-19)

Re claim 36, the combination of Downey and Nakamoto further discloses that, wherein the second frequency band comprises a frequency band of voice signals. (In Downey, see col. 6, lines 7-10. It is very well known in the art that the xDSL family of modems comprises voice band modem connection.)

Re claim 37, the combination of Downey and Nakamoto further discloses that, wherein connecting the disruption circuit comprises connecting a circuit which shorts the at least one first frequency band without shorting the second frequency band. (In Downey, see col. 2, lines 39-41. One skilled in the art would know that one way to inject noise is to short the line.)

Re claim 38, the combination of Downey and Nakamoto further discloses that, wherein connecting the disruption circuit comprises connecting a circuit which injects noise at the at least one first frequency band. (In Downey, see fig. 1: 22 & col. 5, lines 1-7 & claim 2 & col. 2, lines 39-41)

4. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) in view of Conklin et al. (hereinafter Conklin)(US Patent 5,991,881)

Re claim 26, Van Den Brink discloses a method of analyzing the performance of a modem connection comprising: connecting a line interface to a communication link carrying signals of a modem connection, between a pair of end modems (See fig. 1);

collecting modem negotiation signals passing on the communication link, between the end modems, through the line interface (See fig. 1 & paragraphs87-97); analyzing the collected modem negotiation signals. (See fig. 1 & paragraphs87-97)

But the reference of Webster fails to specifically disclose providing a warning on a possible tapping of the communication link, responsive to the analysis.

However, Conklin does. (See figs. 1-3, 6 & col. 5, lines 5-7) Conklin discloses a system for network surveillance and detection of attempted intrusions. The system is comprised of a network observation, intrusion detection, alert notification, evidence logging, and an incident analyzer/reporter.

Taking the combined teachings of Van Den Brink and Conklin as a whole. It would have been obvious to one of ordinary skills in the art to have incorporated this feature into the system of Van Den Brink, in the manner as claimed and as taught by Conklin, for the benefit of preventing attempted intrusion into the network. (See abstract)

5. **Claims (13, 20, 22-23) are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) and Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2), as applied to claim 1 above, and further in view of Conklin et al. (hereinafter Conklin)(US Patent 5,991,881)**

Re claim 13, the combination of Van Den Brink and Nakamoto fails to disclose performing signal tests on test signals collected through the line interface and

comparing the results of the tests to negotiation signals, collected through the line interface, reporting test results from one of the modems.

However, Conklin does. (See col. 4, lines 30-51 & col. 5, lines 46-61) Conklin discloses a system for network surveillance and detection of attempted intrusions. The system is comprised of a network observation, intrusion detection, alert notification, evidence logging, and an incident analyzer/reporter.

Therefore, taking the combined teachings of Van Den Brink, Nakamoto, and Conklin as a whole. It would have been obvious to one of ordinary skills in the art to have incorporated this feature into the system of Van Den Brink, as modified by Nakamoto, in the manner as claimed and as taught by Conklin, for the benefit of preventing attempted intrusion into the network. (See abstract)

Re claim 20, the combination of Van Den Brink, Nakamoto, and Conklin further discloses identifying changes in the operation of the modem connection responsive to signals collected through the line interface and providing suggested causes of the changes. (In Conklin, see col. 4, lines 30-51 & col. 5, lines 46-61)

Re claim 22, the combination of Van Den Brink, Nakamoto, and Conklin further discloses identifying changes comprises identifying a bit swap. (In Conklin, see col. 4, lines 30-51 & col. 5, lines 46-61)

Re claim 23, the combination of Van Den Brink, Nakamoto, and Conklin further discloses providing suggested causes of the changes comprises identifying, for at least one change, a noise that caused the change. (In Conklin, see col. 4, lines 30-51 & col. 5, lines 46-61)

6. **Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) and Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2), and Conklin et al. (hereinafter Conklin)(US Patent 5,991,881), as applied to claim 20 above, and further in view of Downey (US Patent 6,690,720 B1).**

Re claim 21, the combination of Van Den Brink, Nakamoto, and Conklin fails to disclose identifying changes comprises identifying a retrain.

However, Downey does. (See fig. 3 & col. 5, lines 1-23) Downey discloses a system for training/re-training the connection of two modems.

Taking the combined teachings of Van Den Brink, Nakamoto, Conklin, and Downey as a whole. It would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, as modified by Nakamoto and Conklin, in the manner as claimed and as taught by Downey, for the benefit of providing training to the modems.

7. **Claims (46-47 & 49-50) are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US**

Publication 2003/0174765 A1) and Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2)

Re claim 46, the combination of Van Den Brink and Nakamoto fails to explicitly teach that wherein the information content comprises at least one value of a field of the one or more data and other signals.

However, the reference of Nakamoto does teach analyzing traffic, filtering traffic, and capturing traffic for analysis and decoding. (See col. 5, lines 46-49)

Therefore, it would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, for the benefit of optimizing the communication system.

Re claim 47, the combination of Van Den Brink and Nakamoto further discloses that wherein the information content comprises negotiation signal content. (In Nakamoto, see col. 5, lines 46-49. Furthermore, one skilled in the art would know that information transmitted from one end to another end is comprised of data field and a training field.)

Claim 49 has been analyzed and rejected w/r to claim 47.

Claim 50 has been analyzed and rejected w/r to claim 46.

8. **Claims (48 & 51) are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) and Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2)**

Re claim 48, the combination of Van Den Brinik and Nakamoto fails to explicitly teach that using a state machine for keeping track of the state of the modem connection, based, at least partly, on the determined information content.

However, the reference of Van Den Brink does teach a testing device used to test the connection of two modems. The device is comprised of a testing loop and a CPU. The latter is coupled to both modems and the testing loop. (See fig. 1) One skilled in the art would know that this CPU is capable of keeping track of the state of the modem connection.

Therefore, it would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, as modified by Nakamoto, for the benefit of controlling/testing the modem connection.

Claim 51 has been analyzed and rejected w/r to claim 48.

9. **Claims (48 & 51) are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (hereinafter Van Den Brink) (US Publication 2003/0174765 A1) and Nakamoto et al. (hereinafter Nakamoto) (US Patent 7,100,091 B2), and Conklin et al. (hereinafter Conklin) (US Patent 5,991,881), as**

applied to claim 20 above, and further in view of Downey (US Patent 6,690,720 B1).

Re claim 48, the combination of Van Den Brinik, Nakamoto, and Conklin fails to explicitly teach that using a state machine for keeping track of the state of the modem connection, based, at least partly, on the determined information content.

However, Downey does. (See col. 5, lines 25-27) Downey discloses a DSLAM software module which repeatedly inquires as to the training status of the modem.

Taking the combined teachings of Van Den Brink, Nakamoto, Conklin, and Downey as a whole. It would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Van Den Brink, as modified by Nakamoto and Conklin, in the manner as claimed and as taught by Downey, for the benefit of providing training to the modems.

Claim 51 has been analyzed and rejected w/r to claim 48.

Allowable Subject Matter

10. Claims (10, 16, 18, 45) are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Flores whose telephone number is 571-270-1201. The examiner can normally be reached on Mon-Fri 7-5pm Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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January 9, 2008

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